

Application No: 10/781,979
Amendment Dated: May 12, 2006
Reply to Office Action of February 14, 2006
REPLACEMENT SHEET

axmi008	---MKKMSPYQNKNEYEILESSSNNTNTPNRYP---FANNRDMSTMS-----WNDCQGI	48
cry1Aa	-----MDNNPNINECIPYN---CLSNPE-----VEVL	24
cry1Ac	-----MDNNPNINECIPYN---CLSNPE-----VEVL	24
cry1Ia	-----MKLKNQDKHQSFSSNAKVDKISTDS---LKNETDIELQNINHEDECLKMSEYE	49
cry2Aa	-----MNNVLNSGRTTICDAYNVVAHDPFSFEHKS LDTIQKEWMEWKRTDHSLYVAPVV	54
cry3Aa1	MIRKGGGRKMNPNNRSEHDTIKTTENNEVPTNHVQYPLAETPNPTLEDLNYKEFLRMTADN	60
cry3Bb	-----MNPNNRSEHDTIKVTPNSELQTNHNQYPLADNPSTLEELNYKEFLRMTEDS	52
cry4Aa	-----MNPYQNKNEYETLNASQKKLNISNNYTRYPIENSPKQLLQSTNYKDWLNMCCQN	54
cry4Ba	-----MN-----SGYPLANDLQSGMKNTNYKDWLAMCENN	30
cry6Aa	-----MIIDSKTTLPRHSLIHTIKLSNKKYGPDMTNGNQFIISKQEWATIGAYI	51
cry7Aa	-----MNLNNLD--GYEDSNRTLNNSLNYP---TQKALSPSLKNMNYQDFLSITERE	47
cry8Aa	-----MSPNNQNEYEIIDATPSTSVSSDSNRYPFANEPTDALQNMNYKDYLKMSGGE	52
cry10Aa	-----MNPYQNKNEYEIFNAPSNGFSKSNYSRYPLANKPNQPLKNTNYKDWLNVQDN	54
cry16Aa	-----MHYYGNRNEYDILNASSNDSNMSNTYPRYPLANPQQDLMQNTNYKDWLNVCEGY	54
cry19Ba	-----MNSYQNKNEYEILDAKRNTCHMSNCYPKYPLANPQMYLRNTHYKDWINMCEEA	54
cry24Aa	-----MNQYQNKNEYEILESSQNNMMPNRYP---FADDPNAVMMKNGNYKDWVNECEGS	51
cry25Aa	-----MNPYQNKSECEILNAPLNNINMPNRYP---FANDPNAVMMKNGNYKDWLNEDCGI	51
cry39Aa1	-----NSYENKNEYEILNDSKK-SNMSNPYLRYPLANDSLASMQNTNYKDWLTMC DRT	52
cry40Aa1	-----NSYENKNEYEILESSSNNTNMPNRYP---FANDRDMSTMS-----FNDCQGI	44
axmi008	S-----WDEIWESVETITSIGINLIEFVIEPSLGGINTLLSIIGKLIPTNRQT-	96
cry1Aa	G-----GERIETGYTPIDISLSLTQFLLS-EF-VPGAGFVLGLVDIIWIGIFGPSQ---	72
cry1Ac	G-----GERIETGYTPIDISLSLTQFLLS-EF-VPGAGFVLGLVDIIWIGIFGPSQ---	72
cry1Ia	N-----VEPFVS-ASTIQTGIGIAGKILG-TLGVVPFAGQVASLYSFILGELWP-KGK-	98
cry2Aa	G-----TVSSFLKKVGS LIG-----KRILSELWGIIFPSGSTN	88
cry3Aa1	N----TEALDSSTTKDVIQKGISVVGDLG-VVGFPFGGALVSFYTNFLNTIWPSE---	111
cry3Bb	S-----TEVLNSTVKDAVG TGISVVGQILG-VVGVPFAGALTSFYQSFLNTIWPSDA--	104
cry4Aa	QQYGGDFETFDISG---ELSAYTIVVGT VLTGFGFTTPLGLALIGFGTLIPVLFPAQDQS	111
cry4Ba	QQYG-VNPAAINSS---SVSTALKVAGAILK--FVNPPAGTVLTVLSAVLPILWPTNTPT	84
cry6Aa	Q-----TGLGLPVNEQQLRTHVNLSQDISIPSDFSQLYDVYCSDKTS-	93
cry7Aa	Q-----PEALASGNTAINTVSVTGATLS-ALGVPGASFITNFYLKIAGLLWPENGK-	98
cry8Aa	NPEL-FGNPETFIS-SSTIQTGIGIVGRILG-ALGVPFASQIASFYSFIVGQLWPSKSV-	108
cry10Aa	QQYGNNAGNFASSETIVGVSAGIIVVG TMLG-AFAAPVLAAGIISFGTLLPIFWQGS DPA	113
cry16Aa	-----HIENPREASVRAGLGKLGIVSTIVGF-FGGSIIIDTIGLFYQISELLWPEDDT-	107
cry19Ba	-----SYASSGPSQL---FKVGS SIVAKILG-----MPEVGPLLSWMSVLFWPTIEE-	99
cry24Aa	N-----ISPSPAAITSKIVSIVLKTAKAVASSLADSIKSSLGISKITENN-	99
cry25Aa	T-----PSIFGTGLVASIVISTIN-LATSPSIGDAFALVSSIGEYWPETKTS-	98
cry39Aa1	-----DTDVLSSRGA---VSTGVGMLSTILSL-FGIPLIGEGIDLLLGAADFLWPESDGG	103
cry40Aa1	S-----WDEIWESAETITSIGIDLIEFLMEPSLGGINTLFSIIGKLIPTNHQS-	92
axmi008	---VSALSICDLLSIIRKEVADSVLSDAIADF-DGKLKNYREYYLSYLGAWLKD GKPLQK	152
cry1Aa	---WDAFPVQIEQLINQRIEFARNQAISRL--EGLSNLYQIYAESFREWEADPT---N	123
cry1Ac	---WDAFLVQIEQLINQRIEFARNQAISRL--EGLSNLYQIYAESFREWEADPT---N	123
cry1Ia	--NQWEIFMEHV EIIINQKISTYARNKALTDL--KGLGDALAVYHDSLESWVGNRN---N	151
cry2Aa	---LMQDILRETEQFLNQRLNTDTLARVNAEL--IGLQANIREFNQQVDNFLNPTQNPVP	143
cry3Aa1	--DPWKAFMEQVEALMDQKIADYAKNKALAE L--QGLQNNVEDYVSALSSWQKNPVSSRN	167
cry3Bb	--DPWKAFMAQVEVLIDKKIEEYAKSKALAE L--QGLQNNFEDYVNALNSWKKTPLSLRS	160
cry4Aa	--NTWSDFITQTKNIIKKEIASTYISNANKIL--NRSFNVISTYHNHLKTWENPNPQ-N	166
cry4Ba	PERVWNDFMTNTGNLIDQTVTAYVRTDANAKM--TVVKDYLDQYTTKFNTWKREPNNSY	142
cry6Aa	-AEWWNKNLPLI IKSANDIASYGFKVAGDPS--IKKDGYFKKLQDELDNIVDNNS----	146
cry7Aa	--I-WDEFMTEVEALIDQKIEEYVRNKAIAEL--DGLGSALDKYQKALADWLKGQD---D	150
cry8Aa	--DIWGEIMERVEELVDQKIEKYVKDKALAE L--KGLGNALDVYQQSLEDWLENRN---D	161
cry10Aa	N--VWQDLLN-IGGRPIQEIDKNIINVLTSIV--TPIKNQLDKYQEFFDKWEP-ARTHAN	167
cry16Aa	QQYTWDIMNHVEDLIDKRIT E VIRGNAIRTL--ADLQGVDDYNNWLKKWKDDPKSTGN	165
cry19Ba	KNTVWEDMIKYVANLLKQELTNDTLNRATSNL--SGLNESLNINYRALA AWKQKNNFAS	157
cry24Aa	---VSQVSMVQVHQIINRRIQETIILDGESSL-NGLVAIYNRDYLGAL EAWN N---K	150
cry25Aa	----FPLSVADVNR LIREALDQNA INRATGKFN-GLMDTYNTVYLKNLQDWYDTRIPANP	153
cry39Aa1	HQYTWEDLMNHIEELMDERLETEKRTTALDDL--RGLKALLGLFRDAFDSWEKNQNDPIA	161
cry40Aa1	---VSALSICDLLSIIRKEVADSVLSDAICRFLDGKLKNYREYYLPYLEAWLKD GKPLQK	149

Fig. 1A

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axmi008 TNSDI-GQLVYYFKLSERDFNEILGGSLSRN-----NAQVLLLPTFAQAANVQLLLLLRD 206
cry1Aa PALR---EEMRIQFNDMNSALTTAIPLLAQV-----NYQVPLLSVYVQAANLHLSVLRD 174
cry1Ac PALR---EEMRIQFNDMNSALTTAIPLFAVQ-----NYQVPLLSVYVQAANLHLSVLRD 174
cry1Ia TRAR---SVVKSQYIAELMFVQKLPSFAVS-----GEEVPLLPITYAQAANLHLLLLRD 202
cry2Aa LSIT-----SSVNTMQQLFLNRLPQFQIQG-----YQLLLLPLFAQAANMHLSFIRD 190
cry3Aa1 PHSQ---GRIRELFSQAESHFRNSMPSFAIS-----GYEVLFLTITYAQAANTHLFLLKD 218
cry3Bb KRSQ---DRIRELFSQAESHFRNSMPSFAVS-----KFEVLFLPTYAQAANTHLLLLLKD 211
cry4Aa TQDV---RTQIQLVHYHFQNVIPELVNSCPPNPSDCDYINILVLSSYAQAANLHLTVLNQ 223
cry4Ba RTAV---ITQFNLTSAKLRETAVYFSNLVG-----YELLLLPIYAQVANFNLLIRD 191
cry6Aa -----DDDAIAKAIKDFKARCG-----ILIKEAKQYEEAAKNIVTSLD 184
cry7Aa PEAI---LSVATEFRIIDSLFEFSMPSFKVT-----GYEIPLLTVYAQAANLHLALLRD 201
cry8Aa ARTR---SVVSNQFIALDLNLFVSSIPSAVS-----GHEVLLLVYAQAVNLHLLLLRD 212
cry10Aa AKAV---HDLFTTLEPIIDKDLMLKNNAS-----YRIPTLPAYAQIATWHNLNLLKH 216
cry16Aa LSTL---VTKFTALDSDFNGAIRTVNNQGSF-----GYELLLLPIYAQIANLHLLLLRD 216
cry19Ba GELI---RSYINDLHILFTRDIQSDFSLG-----GYETVLLPSYASAANLHLLLLRD 206
cry24Aa SNINYQ-TNVAEAFKTVREFFTKLGFIYRTS-----SSQITLLPTFTQAANLHLSMLRD 204
cry25Aa QGDSQLREAAARRSLEEIERDFRKALAGEFAEAG-----SQIVLLPIYAQAANIHLILKD 208
cry39Aa1 KNRV---GGYFEDVHTHFVKDMASIFSAT-----NYEVL LLPVYAQAANLHLLLLRE 210
cry40Aa1 TNSDI-GQLVKYFELSERDFNEILGGSLLARN-----NAQILLLPYFCASCKQLLLLLRD 203

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axmi008 AVQYKAQWFPFLSAENVRSELISPNSGCDFTGDYERLCKCKTAEYTNCLYWYQVGLNQI 266
cry1Aa VSVFGQRWGFDAAT-----INSRYNDLTRLIGNYTDYAVRWYNTGLERV 218
cry1Ac VSVFGQRWGFDAAT-----INSRYNDLTRLIGNYTDYAVRWYNTGLERV 218
cry1Ia ASIFGKEWGLSSE-----ISTFYNRQVERAGDYSCHVKWYSTGLNNL 246
cry2Aa VILNADEWGISAAT-----LRTYRDYLRNYTRDYSNYCINTYQTAFRGL 234
cry3Aa1 AQIYGEEWGYEKED-----IAEFYKRQLKLTQEYTDHCVKWYNVGLDKL 262
cry3Bb AQVFGEWGYSSSED-----VAEFYHRQLKLTQOYTDHCVNWNVGLNGL 255
cry4Aa AVKFEAYLKNNRQFDYLEP-----LPTAIDYYPVLTKAIEDYTNVCVTTYKGLNLI 275
cry4Ba G-----LINAQEWSLAR-----SAGDQLYNTMVQYTKYIAHSITWYNKGLDVL 235
cry6Aa QFLHGDQKKLEGVIN-----IQKRLKEVQTALNQAHGESSPAHKELLEKV 229
cry7Aa STLYGDKWGFTQNN-----IEENYNRQKKRISEYSDHCTKWYNSGLSRL 245
cry8Aa ASIFGEEWGFTPGE-----ISRFYNRQVQLTAEYSDYCVKWYKIGLDKL 256
cry10Aa AATYYNIWLQNQGPNST-----FNSSNYQGYLKRKIQEYTDYCIQTYNAGLTM 267
cry16Aa AQIYGDKWWSARAN-----ARDNYYQIQLEKTKYETECINWYNKGLNDF 261
cry19Ba VAIYG-KELGYPST-----DVEFYNEQKYTEKYSNYCVNTYKSLNSK 250
cry24Aa AVMYQEGWNLQSHIN-----YSKELDDALEDYTNVCVEVYTKGLNAL 246
cry25Aa AMQFRDGLIRPVGVPITTS-----AEDPFESEFLLRKIKYTDHCISYDDGLAKI 260
cry39Aa1 GVIYG-SRWGIAP-----AADFYHDQLLKYTAIYANHCVTWYNNGLAQ 253
cry40Aa1 AVQYEEQWFPFLSAENVRSELISPNSGCDFTGDYERLCKCKIAEYTDYCEYWYQAGLNQI 263

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axmi008 KQGGTGAD---TWSKFNKFRREMTLAVLDIIAIFPTYDFEKYPLP-----THVELTR 315
cry1Aa WGPDSR-----DWVRYNQFRRELTTLVLDIVALFNSYDSRRYPPIR-----TVSQLTR 265
cry1Ac WGPDSR-----DWVRYNQFRRELTTLVLDIVALFPNYDSRRYPPIR-----TVSQLTR 265
cry1Ia RGTNAE-----SWVRYNQFRDMTLMVLDLVALFPSYDTQMYPIK-----TTAQLTR 293
cry2Aa NT-----RLHDMLEFRTYMFLNVFEYVSIWSLFKYQSLMVS-----SGA 273
cry3Aa1 RGSSYE-----SWVNFNRYRREMTLTLVLDLIALFPLYDVRLYPKE-----VKTELTR 309
cry3Bb RGSTYD-----AWVKFNFRREMTLTLVLDLIVLFPFYDIRLYSKG-----VKTELTR 302
cry4Aa KTTSDSNLDGNINWNTYNTYRTKMTTAVLDLVALFPNYDVKGYPG-----VQSELTR 328
cry4Ba RNKSNG-----QWITFNDYKREMTIQVLDLIALFASYDPRYPADKIDNTKLSKTEFTR 289
cry6Aa KN-----LKTTLERTIKAEQDLEKKVEYSFLLGPLL-----FVVY 265
cry7Aa NGSTYE-----QWINYNRFRREMILMALDLVAVFPFHDPRYSME-----TSTQLTR 292
cry8Aa KGTTSK-----SWLNYHQFRREMTLLVLDLVALFPNYDTHMYPIE-----TTAQLTR 303
cry10Aa RTNTNA-----TWNMYNTYRLEMTLTLVLDLIALFPNYDPEKYPIG-----VKSELIR 314
cry16Aa R-----TAGQWVNFNRYRREMTLTLVLDIISMFPYIDARLYPT-----EVKTELTR 306
cry19Ba K-----QIG-WSDFNRYRREMTLSVLDLVALFPLYDTGLYPSK-----DGKIHVKAELTR 299
cry24Aa R--GSTAI---DWLEFNSFRDMTLMVLDLVAIFPNYNPVRYPLS-----TKISLSR 293
cry25Aa RSRGSDGE---TWWEFNKFRREMTLTLVLDLVALYPHNIKLYPI-----TQTELSR 309
cry39Aa1 KE----LFAKSPNWNRFNAYRRDMTITVLDLIALFPTYDARLYTK-----PIKTELTR 302
cry40Aa1 KQAGTGAD---TWAKFNKFRREMTLTLVLDIIAIFQTYDFKKYPLP-----THVELTR 312

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Fig 1B

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axmi008	EIYTDVAGYSS-----GTYSWLRNWPNTFNGLANGTRGP-GLVTWLSKIGIYNEYVSRY	369
cry1Aa	EIYTNPVLENFDGS-----FRG--MAQRIEQNIRQP-HLMDILNSITIYTDVHRGF	313
cry1Ac	EIYTNPVLENFDGS-----FRG--SAQGIERSIRSP-HLMDILNSITIYTDVHRGF	313
cry1Ia	EVYTDAGTVHPHPSFTSTTWNNNAPSFAIEAAVVRNP-HLLDFLEQVTTIYSLLS--R	350
cry2Aa	NLYASGSGPQQTQS-----FTAQNWPFYLSLFQVNSNYILSGISGTRLSITFPNIG	324
cry3Aa1	DVLTDPVIGVNNLR-----GYGTTFSNIEN-YIRKP-HLFDYLHRIQFHTRFQPGY	358
cry3Bb	DIFTDPVIFSLNTLQ-----EYGPFTFLSIEN-SIRKP-HLFDYLQGIEFHTRLQPGY	351
cry4Aa	EIYQVLN---FEES-----PYKYYDFQYQEDSLTRRP-HLFTWLDLSLNFYEKAQTTT	376
cry4Ba	EIYTAL-----VES-----PSSK-SIAALEAALTRDV-HLFTWLKRVDFWNTNTIYQD	334
cry6Aa	EILENTAVQHIKNQ-----IDEIKKQLDSAQHDLDLDRVKIIGMLNSINTDI	311
cry7Aa	EVYTDVPSLSISNP-----DIGPSFSQMENTAIRTP-HLVYDYLDELYIYTSKYKAF	342
cry8Aa	DVYTDPIAFNIVTSTGFCNPWSTHSGILFYEVENNVIRPP-HLFDILSSVEINTSRGGIT	362
cry10Aa	EVYTNVN-----SDTFRITTELENGLTRNP-TLFTWINQGRFYTRNSRDI	358
cry16Aa	EIYSDVINGEYIYGL-----MTPYFVSFEKAESLYTRAP-HLFTWLKGRFVTVNS-ISKY	356
cry19Ba	EIYSDVINOHVYGL-----MVPYISFEHAESLYTRAP-HAFTWLKGRFVTVNS-INS	349
cry24Aa	KIYTDVPGRTDPS-FGDWTNTGRTLANFNDLEREVTDSP-SLVKWLGDMTIYTGADISY	351
cry25Aa	VVYTDVPGCFGNRK-----SDIFSRNFDYLENRLTRPR-EPFNYLNSVQLFASTVSNS	362
cry39Aa1	EIYSDVLNLDVYGV-----QQT--DLNKNEAAFTTRSP-HLVTRLRGDFYTRTKYAY	351
cry40Aa1	EIYTDVPGYSS-----GTYSWLKYWTGAFNTLEANGTRGP-GLVTWLSRIGIYNEYVSRY	366
	:	
axmi008	FAG-----WVGTRHYEDYTKGNGIFQR-----MSGTTSNDLRNIDFQ---NADV	410
cry1Aa	N-----YWSGHQITASPVGFSGPEFAFPL-----FGNAGNAAPP-VLVSLTGLGIF	358
cry1Ac	Y-----YWSGHQIMASPVGFSGPEFTFPL-----YGTMGNAAPQQRIVAQLQGQVY	359
cry1Ia	WSNTQYMN-MWGGHKLFRITIGGTNLNISTQ-----GSTNTSINPVTLPFTSRDVF	399
cry2Aa	GLPG-----STTHSLNSARVNYSGGVSSGLIG-----ATNLNHNFCSTVLPPLSTPF	373
cry3Aa1	YGNDSFN--YWSGNYVSTRPSIGSNDIITSPP-----YGNKSSEPVQ--NLEFNGEKVY	408
cry3Bb	FGKDSFN--YWSGNYVETRPSIGSSKITITSPP-----YGDKSTEPVQ--KLSFDGQKVY	401
cry4Aa	NN-----FFTSHYNNMFHYTL-DNISQKSSV-----FGNHNVTDKLKS-LGLATNIYI	421
cry4Ba	LR-----FLSANKIGFSYTN-SSAMQESGI-----YGSSGFGSNLTHQIQLNSNVYK	380
cry6Aa	DN-----LYSQQEAIAKVFQKQLQGIWATIG-----AQIENLRTTSL	347
cry7Aa	SHEIQPDLFYWSAHKVSFKKSEQSN-LYTTGI-----YGKTSGYISS-GAYSFHGNDIY	394
cry8Aa	LNNDAYIN-YWSGHTLKYRRADSTVITYA-----NYGRITSEKNSFVLPDRDIF	411
cry10Aa	LDPYDIF--SFTGNQMAFHTTN-DDRNIIWGA-----VHGNIISQDTSKVPFPYRNKPI	409
cry16Aa	WT-----FLSGGQNKYSYTN-NSSINEGSF-----RGQDTEYGGTSSINIPNSYV	402
cry19Ba	WT-----FLSGGENRYFLTHGEGTIYNGPF-----LGQDTEYGGTSSYIDISNNSI	396
cry24Aa	RPT-----SPGDRIGVWYGNINAFYHTGRTDVVMFRQTGDTAYEDPSTFISNLYDDI	404
cry25Aa	NNGE----VLRGNLNMKIMFEGGWATASRGDG----VTTGTPTFSTMDWSYGWGYPKHYA	413
cry39Aa1	WR-----YLAGHTNYFSFTG-NGTIYSSSF-----N-NWYDTEMTKSTINIPDYANI	396
cry40Aa1	FSG-----WVGTRHYEDYTTGNGNFQR-----MSGTTSNDLRDISFP---NSDI	407
axmi008	YKITS LAIMNLVGETTARPEYRVSKADFRVGGPDLNYDAGNGLSRMTIESTFPLVLHS	470
cry1Aa	RTLSSP---LYRRIILGSGPNNQELFVLVDGTEFSFASLTTLNLPSTIYRQRTVDSL DVIP	415
cry1Ac	RTLSSP---LYRRPFN-IGINNQLSVLDGTEFAYG-TSSNLPSAVYRKSGTVDSLDEIP	414
cry1Ia	RTESLAGLNLFLTQPVNGVPRVDFHWKFVTHPIASDNFYYPGYAGIG--TQLQDSENELP	457
cry2Aa	VRSWLDSGTDREGVATSTNWQTESFQTTLSLRCGAFSARGNSNYFPDYFIRNISGVPLVI	433
cry3Aa1	RAVANTNLAVWPS-AVYSGVTKEVFSQYNDQTEASTQTYDSKRNVG-AVS-WDSIDQLP	465
cry3Bb	RTIANTDVAAPNGKVYLGVTKVDFSQYDDQKNETSTQTYDSKRNG-HVSAQDSIDQLP	460
cry4Aa	FLLNVISLDNKY-LNDYNNISKMDFFITNGTRLLEKELTAGSGQITYDVNKNIFGLPILK	480
cry4Ba	TSITDTSSP-----SNRVTKMDFYKIDGT---LASYNSNITPTPEGLRTTFFGFSTNE	430
cry6Aa	QEVQSDDDADEIQIELEDASDAWLVAQEARDFTLNAYSTNSRQNLPINVISDCSNCSTT	407
cry7Aa	RTLAAPSVVVYPYTQN-YGVEQVEFYGVKGHVHYRGDNKYDL-----TYSIDQLP	444
cry8Aa	EINSTVANLANYQKAYGVPGSWFHVMKRGTSSTTAYLYSKTHTALQGCTQVYESSDEIP	471
cry10Aa	DKVEIVRHR----EYSDIIEYEMIFFSNSSE---VFRYSSNSTIENNYKRTDSYMIKQT	461
cry16Aa	YNLWTENYEYIYPWGDVNVITKMNFSVTDNNSKELIYGAHRTNKPVRTDFDFTLNKEG	462
cry19Ba	YNLWTKNYEWIYPWTDVNVITKINFSITDNSNSSESIYGAERMNKPTVRTDFNLLNRAG	456
cry24Aa	YKLDLRAAAVSTIQGAMDTTFGVSSSRFFDIRGRNQLYQS-NKPYPPLPITITFPGEES	463
cry25Aa	EITSRSQALPGLNNSIHVIGIDQSFAIRGPGGQGDHTFSLPGGDMYDCGKVINPLEDYR	473
cry39Aa1	YKLWTKSYTNISPYTDPVGISQMFSLTNN---QQLTYTGTSAPKYPVRETFF- FEIPPTD	452
cry40Aa1	FKIESKAIMNLVGEINARPEYRVSRAEFSESTAFIYLYDAGNSGLSSMTITSKLPKIKNP	467

Fig. 1C

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axmi008 N-GVR-----GPSHRLS-----NAACVVYG--NSRVNVYGWHTSLKRENIIE 510
cry1Aa PQDNS-----VPPRAGFSHRLSHVTMLSQAAG--AVY--TLRAPTFWSQHRSAEFNNIIP 466
cry1Ac PQNNN-----VPPRQGFHRLSHVSMFRSGFSNSSVS--IIRAPMFSWIHRSAEFNNIIA 467
cry1Ia PEATG-----QPNYESYSHRLSHIGLISASHVK-ALV--YS-----WTHRSADRTNTIE 503
cry2Aa RNEDLTR-----PLHYNQIRNIESPSGTPGGARAYLVSVHNRKNNIYAANENGTMIHLa 487
cry3Aa1 PETTD-----EPLEKGYSHQLNLYVMCFLMQGSR-----GTIPVLTWTHKSVDFFNMID 513
cry3Bb PETTD-----EPLEKAYSHQLNYAECFLMQDORR-----GTIPFFTWTTHRSVDFFNTID 508
cry4Aa RRENQGNPTLPPTYDNYSHILSFIKSL SIPATYKTQV-----YTFAWTHSSVDPKNTIY 534
cry4Ba NTPNQ-----PTVNDYTHILSYIKTDVI--DYNSEN-----VSFAWTHKIVDPNNQIY 476
cry6Aa NMTSN-----QYSNPTNMTSNQYMI 428
cry7Aa PDGE-----PIHEKYTHRLCHATAIFKSTP--DYD--NATIPFSWTHRSAEYNNRIY 493
cry8Aa LDRT-----VPVAESYSHRLSHITSHSFSKNG-SAY--YGSFPVFWVWTHSADLNNTIY 522
cry10Aa WKNEE-----YGHLSYIKTDNYIFSVMRERRR----VAFSWTHTSVDFFQNTID 506
cry16Aa TELAK-----YNDYNHILSYMLINGETFGQKRHG-----YSFAFTHSSVDPNNTIA 508
cry19Ba NGPTT-----YNDYNHILSYMLINGETFGQKRHG-----YSFAFTHSSVDRYNTIV 502
cry24Aa EGNAN-----DYSHLLCDVKILQEDSSNICEG--RSSLLSHAWTHASLDNRNTIL 511
cry25Aa NSDHWIS-----DMMTINQSVQLASNPTQTFAFS-----ALSLGWHHSSAGNRNVYV 520
cry39Aa1 EKPLT-----YENYSHILSYMTS-AQHFQDKKIG-----YTFAWMHESVDFFDNVRD 497
cry40Aa1 EPSYR-----DYSHRLS-----NAACVGAG--NSRINVYGWHTSMSKYNLIY 508

axmi008 ANQIT--QIPAVKSYLLQNYLANAYTYVIKGT-HTGGDLIRFLRTKSEYNAVYAGGGIRL 567
cry1Aa SSQIT--QIPLTKSTNLGS-----GTSVVKPGPGFTGGDLRRTSPGQI---STLRVNITA 516
cry1Ac SDSIT--QIPAVKGNFLFN-----G-SVISGPGFTGGDLVRLNSSGNN---IQNRGYIEV 516
cry1Ia PNSIT--QIPLVKAFNLSS-----GAAVVRGPGFTGGDLRRTNTGTTF---GDIRVNINP 553
cry2Aa PEDYTGTIISPIHATQVNN---QTRTFISEKFGNQGDSLRFEQSN-----TTA 532
cry3Aa1 SKKIT--QLPLVKAYKLQS-----GASVVAGPRFTGGDIIQCTENG-----SAATIVY 559
cry3Bb AEKIT--QLPVVKAYALSS-----GASIEGPGFTGGNLLFLKESSN-----SIKFKV 555
cry4Aa THLTT--QIPAVKANSLGT-----ASKVVQPGPGHTGGDLIDFKDH-----FKITQC 578
cry4Ba TDAIT--QVPAVKSNFLNA-----TAKVIKPGPGHTGGDLVALTSNGTL---SGRMEIQCK 526
cry6Aa SHEYT---SLPNNFMLSRL----- 443
cry7Aa PNKIT--KIPAVKMYKLDD-----PSTVVKPGPGFTGGDLVKGSTGYI---GDIKATVNS 543
cry8Aa SDKIT--QIPAVKGDMLYL-----GGSVVQPGPGFTGGDILKRTNPSIL---GTFAVTVNG 572
cry10Aa LDNIT--QIHALKALKVSS-----DSKIVKPGPGHTGGDLVLKDS-----MDFR 548
cry16Aa ANKIT--QIPVVKASSING-----SISIEKPGPGFTGGDLVKMRADS-----GLTM 551
cry19Ba PDKIV--QIPAVKTNLVG-----ANIKPGPGHTGGDLLKLEYER-----FLSL 543
cry24Aa PDEIT--QIPAVTAYELR-----GNSSVAGPGSTGGDLVKMS-----YHSVWS 553
cry25Aa YDKIT--QIPATKTVREHP-----MIKPGPGFTGGDLADLSSNSD---ILQYDLRSD 566
cry39Aa1 PDKIT--QIPAVKGDYLYQ-----GYVKQPGPGHTGGDLVSMIRTD-----RLGI 539
cry40Aa1 PDKIT--QIPAVKAFDIS---DTGPGQVIAGPGHTGGNVVSLP-----YYSRLKIRL 555

axmi008 IINNKTAGQSYRIRFRYAADKAFFSVYLYPGWGSNRFVSLEKSYSGNYDDLK----- 621
cry1Aa PL-----SQRYRVIRIYASTTNLQFHTSIDGRPINQGNFS---ATMSSGSNLQ----- 561
cry1Ac PIHFPSTSTRYRVIRIYASVTPIHNLNVNWNSSIFSNTVP---ATATSLDNLQ----- 566
cry1Ia PF-----AQRYRVIRIYASTTDLQFHTSINGKAINQGNFS---ATMNRGEDLD----- 598
cry2Aa RYTLRGNGNSYNLYLRVSSIGNSTIRVTINGRVYTVSNVNTTTNNDGVNDNGAR----- 586
cry3Aa1 TP-DVSYSQYRARIHYASTSQITFTLSLDGAPFNQYYFD---KTINKGDTLT----- 608
cry3Bb TLNSAALLQRYRVIRIYASTTNLRLFVQNSNNDFLVIYIN---KTMNKDDDLT----- 605
cry4Aa HSNF---QSYFIRIRIYASNGSANRAVINLSIPGVAELG-MALNPTFSGTD---YTNLK 631
cry4Ba TSIFNDPTRSYGLRIRYAAN--SPIVLNVSYVLQGVSRGTTISTESTFSRPNNIPTDLK 584
cry6Aa -----NSNLEYKCPENNFMIIWYNNNSDWYNNNSDWYNN----- 475
cry7Aa PL-----SQRYRVIRIYATNVSQGFNVYINDKITLQTKFQNTVETIGEGKDLT----- 591
cry8Aa SL-----SQRYRVIRIYASTTDFEFTLYLG-DTIEKNRFN---KTMNDGASLT----- 616
cry10Aa VRFLKNVSRQYQVIRIYATNAPKTTVFLTGIDTISVELPSTTSRQNP-----ATDLT 601
cry16Aa RFKAELLDKKYRVIRIYKCNYSKILRLKWKGEYIQQQIHNIS--PTYGAFSY----- 603
cry19Ba RIK-LIASMTFRIRIRIYASNISGQMMINIGYQNPYFNIIPTTS--RDYTELK----- 593
cry24Aa FKVYCSELKNYRVIRIYASHGNCQFLMKRWPSTGVAPRQWARHNVQGTFSNSMR----- 607
cry25Aa YDDRLTEDVPFRIRIRICASIGVSTISVDNWGSSSPQVTVASTAASLDTLK----- 616
cry39Aa1 NVY-FPQPLDYRIRIRYSTSSNGYLYIYSPNTKIVYLPPTTLVDGQPTFDPM----- 591
cry40Aa1 IP--ASTNKNYLVRVRYTSTSNGRLLVERWSPSSIINSYFFLPSTGPG--DSFG----- 605

Fig. 1D

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axmi008	---YSDFKFAEIIITPPLPSSNIQMDVEMQANSFQSDVNVVLDKIEFLPSNTTTLEYEGER	678
cry1Aa	---SGSFRTVGFTTTPFNFSNGSSVFTLSAHV-FNSGNEVYIDRIEFVPAEVTFEA---	EY 614
cry1Ac	---SSDFGYFESANAFTSSLGN---IVGVRN-FSGTAGVIIDRFEFIPVTATLEA---	EY 616
cry1Ia	---YKTFRTVGFTTTPFSFLDVQSTFTIGAWN-FSSGNEVYIDRIEFVPEVITYEA---	EY 651
cry2Aa	-----FSDINIGNIVASDNTNVTLDINVTLNSGTPFDLMNIMFVPTNLPLY-----	633
cry3Aa1	---YNSFNLASFSTPFELSG--NNLQIGVTG-LSAGDKVYIDKIEFIPVN-----	652
cry3Bb	---YQTFDLATTNSNMGFSGDKNELIIGAES-FVSNEKIYIDKIEFIPVQL-----	652
cry4Aa	YKDFQYLEFSN---EVKFPAPNQNISLVFNRSVDYTNNTTVLIDKIEFLPITRSIREDREKQ	688
cry4Ba	YEEFRYKDPFDAIVPMRLSSNQLITIAIQPLNMTSNNQVIIDRIEIIIPITQSVLDETENQ	644
cry6Aa	-----	
cry7Aa	---YGSFGYIEYSTTIQFPDEHPKITLHLSL-LSNNSSFYVDSIEFIPVDVNYAE---	KE 644
cry8Aa	---YETFKFASFITDFQFRETQDKILLSMGD-FSSGQEVYIDRIEFIPVDETYEA---	EQ 669
cry10Aa	YADFGYVTFPRTVPNKTFEGEDTLLMTLYGTPNHSYN-IYIDKIEFIPITQSVLDYTEKQ	660
cry16Aa	---LESFTITTTENIFDLTMEVITYPYGRQFVEDIPS--LILDKIEFLPTN-----	648
cry19Ba	---FEDQLVDTSYIYSGGPSISS--NTLWLDNFSNGPVIIDKIEFIPLGITLNQAQGYD	648
cry24Aa	---YEAFKYLDIFTITP-----EENNFAFTIDLESGGDLFIDKIEFIPVSGSAFEGYKQ	659
cry25Aa	---YESFQYVSIPGNYYFDSAPRIRLLRQPG-----RLLVDRIEIIPVNFPLS-----	662
cry39Aa1	---FSAFRVVEVPASFR--ASVAG--YTNTFIEAGFGPVYIDKIEFIPDNTTTLEYEGGR	644
cry40Aa1	---YVDTLVTTFNQP-----GVEI IQNLDTPIN--VDKVEFIPVNSTALEYEGKQ	651
axmi008	DLEKTKNAVNDLFTN-----	693
cry1Aa	DLERAQKAVNELFTSSNQIGLKTDTVTDYHIDQVSNLVECLSDDEFCLDEKQELSEKVKHAK	674
cry1Ac	NLERAQKAVNALFTSTNQLGLKTNVTDYHIDQVSNLVLYLSDEFCLDEKRELSEKVKHAK	676
cry1Ia	DFEKAQEKVTALFTSTNPRGLKTDVKDYHIDQVSNLVESLSDEFYLDKRELFEIVKYAK	711
cry2Aa	-----	
cry3Aa1	-----	
cry3Bb	-----	
cry4Aa	KLETVQQIIINTFYANPIKNTLQSELTDYDIDQAANLVECI SEELYPKEKMLLLDEVKNAK	748
cry4Ba	NLESEREVVNALFTNDADALNIGTTDYDIDQAANLVECI SEELYPKEKMLLLDEVKNAK	704
cry6Aa	-----	
cry7Aa	KLEKAQKAVNTLFTE-GRNALQKDVTDYKVDQVSILVDCISGDLYPNEKRELQNLVKYAK	703
cry8Aa	DLEAAKKAVNALFTNTKD-GLRPGVTDYEVNQAANLVECLSDDLYPNEKRLLFDVREAK	728
cry10Aa	NIEKTQKIVNDLFTN-----	675
cry16Aa	-----	
cry19Ba	TYDQANANGMYHQNYNSNGYNQYNTYYQSYNN-----	682
cry24Aa	NIEKTQKAVNDLFIN-----	674
cry25Aa	--EQENKSVDSLFIN-----	675
cry39Aa1	DLEKTKN-AVNDLFTN-----	659
cry40Aa1	SLEKAQDVVNDLFTN-----	666

Fig. 1E

axmi008-orf2	MSPMFTSSTKNTLKIETTDYEIDQAAISIECMSDEQNPEKIMLWDEIKLAKQLSQSRNL	60
cry19Aa-orf2	VNFMLTSGAKNMLKLETTDYEIDQMANAIENMSGEQYSQEKMMQWHDIKYAKQLSQARNL	60
crybun2orf2	---MFISNIKNTLKIETTDYEIDQAAISIECMSNEHSSKEEMMLWDEVKQAKQLSWSRNL	57
crybun3orf2	---MFTNGTKNTLKIETTDYEIDQAAISIECMSDEHSPEKMMLLWDEVKRAKLQSQRNL	57
cry4Aa	INTFYANPIKNLTQSELTDYDIDQAANLVECISEELYPKMKLLLDEVKNAKQLSQSRNV	60
cry4Ba	VNALFTNDAKALNIGTTDYDIDQAANLVECISEELYPEKMKLLLDEVKNAKQLSQSRNV	60
	: . *: *: ***:*** * :* :* * .:*::: .:* ** ** :**:	
axmi008-orf2	LQNG--DFSGNDWTFGNDIIIGSNNPFIKKGFLQMRGARDIYGTLFPTYICQKIDESKL	117
cry19Aa-orf2	LQNGDFEDLFSG-WTTSNQMSIQADNATFKGNYLHMMSGARDIYGTLFPTYIYQKIDESKL	119
crybun2orf2	LYNGDFEDVDSNG-WKTSNTIEIRENSPVFKGHYLMFMGARDIDGTFLPTYIYQKIESKL	116
crybun3orf2	LQNGDFGDFFYGNWDWKFGNNIIIGSNNSIFKGNFLMGARDIYGTIFTPTIYQKIDESKL	117
cry4Aa	LQNGDFESATLG-WTTSDNITIQEDDPFIKGHYLMMSGARDIDGTIFTPTIYQKIDESKL	119
cry4Ba	LQNGDFESATLG-WTTSDNITIQEDDPFIKGHYLMMSGARDIDGTIFTPTIYQKIDESKL	119
	* ** . . *. .: : * .. ***::*: ***** **:***** ***:****	
axmi008-orf2	KPYTRYRVRGVFGSSKDLKLMVTRYGKEIDAIMNVPNDLAYMQPNPSCG---DYRCCESS	174
cry19Aa-orf2	KPYTRYLVRGFVGSSKDLELMVMRYGKEIDTVMNVPNDIPYVPSMPVCNELYDGQQPYPN	179
crybun2orf2	KPYTRYRVRGVFGSSKDLKLMVTRYGKEIDAMNVPNDLAYMQPTPSCG---DSRCCESS	173
crybun3orf2	KPYTRYRVRGVFGSSKDLRLMVTRYGKEIDAMNVPNDLAYMQPNPSCG---DSRCCESS	174
cry4Aa	KPYTRYLVRGFVGSSKDVELVVSRYGEEIDAIMNVPADLNLYLPS-----TFDCEGSN	172
cry4Ba	KPYTRYLVRGFVGSSKDVELVVSRYGEEIDAIMNVPADLNLYLPS-----TFDCEGSN	172
	***** *****.***:***:***** *: *: . ..	
axmi008-orf2	QYVSQGYPPTP-TDGYAPDMYACPQNIDRKHKVCHDRHPFDHFIDTGVDNTTNVGDIVLL	233
cry19Aa-orf2	RHVGYYNPMP-VSQPSYSDTCQCCTPGKKHVCHDSHQKFKHIDTGVDYNTNLGIWVLF	238
crybun2orf2	RYVSQGYPPTPVTDGYASGRYACQSNRGTHVKVCHDRHPFDHFIDTGELDTNTNVGDIVLF	233
crybun3orf2	QYVSQGYPPTP-TDGYAPDRYACPSSSDKKHVMCHDRHPFDHFIDTGELDTNTNVGDIVLF	233
cry4Aa	RCETSAVPAN-IGNTSDMLYSCQYDTGKKHVVCQDSHQFSFTIDTGALDTNENIGVVWF	231
cry4Ba	RCETSAVPAN-IGNTSDMLYSCQYDTGKKHVVCQDSHQFSFTIDTGALDTNENIGVVWF	231
	: * . : :* . *** ** * * * ***** :* ** *: *	
axmi008-orf2	KISNPDGYATVGNLEVIEEGPLTGEALAHVKQKEKKWKQHMEKKRWETQQAYDPAKQAVD	293
cry19Aa-orf2	KISSPDGYATLDNLEVIEEGPVARGEAVTHVKQKEKKWNQOMEKKRMETKRKYDRAKQAVD	298
crybun2orf2	KISNPDGYATLGNLEVIEEGPLTGEALTHVKQKEKKWKQHMEKKRWETQQAYDPAKQAVD	293
crybun3orf2	KISNPDGYATLGNLEVIEEGPLTGEALTHVKQKEKKWKQHMEKKRWETQQAYDPAKQAVD	293
cry4Aa	KISSPDGYASLDNLEVIEEGPIDGEALSrvkhmeKKWNQOMEAKRSETQQAYDVAKQAID	291
cry4Ba	KISSPDGYASLDNLEVIEEGPIDGEALSrvkhmeKKWNQOMEAKRSETQQAYDVAKQAID	291
	.**:..*****: ***::*: *****:.* ** *:..** ******	
axmi008-orf2	ALFTNE--QELHYHITLDHIQNADRLVQSIPIVYHNWLPNAPGMNYDVYQELNARIMQGY	351
cry19Aa-orf2	ALFTG--EELNYDVTLSHIKNADDLVQSIPIVYHNEWLPDFPGMNYDIYQELNARIMQAR	355
crybun2orf2	ALFTNE--QELHYHITLDHIQNADRLIAIPYVYHAWLPDAPGMNYDGYQGLNARIMQAY	351
crybun3orf2	TLFTNE--QELHYHITLDYIQTLDIWYSRFPIYTMTGYRDAPGMNYDGYQGLNARIMQAY	351
cry4Aa	ALFTNVQDEALQFDTTLAQIYA EYLVQSIPIVYNDWLS DVPGMNYDI YVELDARVAQAR	351
cry4Ba	ALFTNVQDEALQFDTTLAQIYA EYLVQSIPIVYNDWLS DVPGMNYDI YVELDARVAQAR	351
	:***. : *:. ** *: . :* : ***** * *:*** :	
axmi008-orf2	NLYDARNVITNGDFTQGLQGWHATGNAAVQQMDGASVLVLSNWSAGVSQNLHAQDHGGYV	411
cry19Aa-orf2	YLYDARNVITNGDFAQGLQGWAHEGKVEVQQMNGTSVLVLSNWSSGVSQNLHVQHPHGyl	415
crybun2orf2	NLYDARNVITNGDFTQGLTGWHAAGKAMVQQMDGASVLVLSNWSAGVSQNLHVQEHHGYM	411
crybun3orf2	NLYDARNVITNGDFTKGLQGWAHGAAGVQQIDGASVLVLSNWSAGVSQNLHAQDHGGYM	411
cry4Aa	YLYDTRNIIKNGDFTQGVMGWHTGNADVQQIDGVSVLVLSNWSAGVSQNVHLQHNHGYV	411
cry4Ba	YLYDTRNIIKNGDFTQGVMGWHTGNADVQQIDGVSVLVLSNWSAGVSQNVHLQHNHGYV	411
	*****.***:***:*****: *****:*****:*****:*****:*****:*****:	

Fig. 2A

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axmi008-orf2    LRVIAKKEGPGKGYVTMMDCNQETLKFTSCEEGYMTKTVEVFPESDRVRIEIGETEGT  471
cry19Aa-orf2    LRVSAKKEGSGKGYVTRMSCNKGQETLTFTSCDGGYMTKTVEVFPESDRVRIEIGETEGS  475
crybun2orf2     LRVIAKKEGPGKGYVTMMDCNNGNRETLLKFTSCEEGYMTKTVEVFPESDRVRIEIGETEGT  471
crybun3orf2     LRVIAKKEGPGKGYVTMMDCNQETLKFTSCEEGYMTKTVEVFPESDRVRIEIGETEGT  471
cry4Aa          LRVIAKKEGPGNGYVTLMDCEENQEKLTFSTCEEGYITKTVDFPDTDRVRIEIGETEGS  471
cry4Ba          LRVIAKKEGPGNGYVTLMDCEENQEKLTFSTCEEGYITKTVDFPDTDRVRIEIGETEGS  471
                ***  *****.*:***** *.*: :;*.*.*****; **:*****;***:;*****;*****;

axmi008-orf2    FYIDSIELLCMQGYDNNNNLHTGNMYEQSYNGNYNQNTSDVYYQGYTNMYNQDSSNMYNQ  531
cry19Aa-orf2    FYIESIELICMNGYTSNNNQNMNSMYDQSYSGNYSQNTSDMYDQG-----GSVAKFEK  528
crybun2orf2     FYVDSIELLCMQGYASNNNPHTGNMYGQSYNGNYNQNTSDVYHQGYTNMYNQDSSNMYNQ  531
crybun3orf2     FYVDSIELLCMQGYASNNNPHTGNMYGQSYNGNYNQNTSDVYHQGYTNMYNQDSSNMYNQ  531
cry4Aa          FYIESIELICMNE-----  484
cry4Ba          FYIESIELICMNE-----  484
                **:;*****;*:

axmi008-orf2    NYTNDDLHSGCTCNQGHNSGCTCNQGYNR  561
cry19Aa-orf2    E-----  529
crybun2orf2     NYTHNDDLHSGCTCNQGHNSGCTCSQG---  558
crybun3orf2     NYTHNDDLHSGCTCNQGHNSGCTCSQG---  558
cry4Aa          -----
cry4Ba          -----
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Fig. 2B